***Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ P: \_\_\_\_\_\_\_***

CW #32 Find the Perimeter and Area of Complex Figures

GEOMETRY

**MEA 601** – Use relationships involving area, perimeter, and volume of geometric figures to compute another measure.

# Objective(s):

4.1 Given perimeter/side lengths of a geometric figure, find the perimeter/side lengths of another geometric figure.

4.2 Given the area of a figure, find the new dimensions of an increase/decreased area.

|  |  |
| --- | --- |
| EXAMPLE 1) The area of the triangle below is 80in2. How long is its base? | 2) The area of a square is 36 square centimeters. How long is one side? |
| 3) The perimeter of the parallelogram below is 15ft. What is the value of X? | 4) The area of a circle is 100 sq in. What is its diameter? |
| 5) Find the value of h. | EXAMPLE 6) The long side of a rectangle is 10 feet longer than the short side. If the rectangle’s perimeter is 36, what is its area? |
| 7) The rectangle below has a perimeter of 110 miles. What is its area? | 8) Wallpaper at a local home store costs $23 per roll. Each roll, when laid out, measures 2ft by 30 ft. If you spend exactly $138 on wallpaper to cover your bedroom walls and you use all the paper you buy, what is the area of your walls? |
| 9) A square is cut along its diagonals to make four triangles, as shown below.    What is the area of one of the  triangles? | 10) A quilt pattern is shown below. Some of the dimensions of the quilt’s panels are given (in feet). Find the area of the entire quilt. |
| 11) Find the area of the shaded triangle. | Example 12) A circle has a circumference of 18 ft. What is its area? |
| 13) A circle has an area of 30 square inches. If you double the radius, what will its new area be? | 14) Find the area of the shaded ring to the right. |
| 15) Find the perimeter of the rectangle below. | 16) Circus Maximus, an ancient Roman racetrack, is shown below.    What is the length of the track to the nearest meter? |
| EXAMPLE 17) Jesus has 400 feet of fence for a rectangular backyard play area for his dog. What is the largest area Jesus can have for his dog’s play area? | 18) Daisy plans to build a pen for her pet rabbit. What is the area of the largest rectangular pen that she can make with 28 feet of fencing? |
| 19) A square and a semicircular region have the same perimeter. If the perimeter of the square is 16 in, what is the length of the radius of the circle? | 20) A square and a semicircular region have the same perimeter. If the perimeter of the square is 20 in, what is the length of the radius of the circle? |
| 21) What is a maximized area of a quadrilateral with a fixed perimeter of 24 units? | 22) The circumference of a circle and the perimeter of an equilateral triangle are the same. If the diameter of the circle is 10 cm, what is the length of the side of the triangle? Give an exact and approximate answer. |
| 23) A square and a right triangle share the same perimeter. The right triangle has a 26 cm hypotenuse and a 10 cm leg. What is the length of one of one side of the square? | 24) A rectangle and a square have the same perimeter. If one side of the square is 6 inches, and the length of the rectangle is 4 inches, what is the width of the rectangle? |
| 25) A square and a circle have the same area. If one side of the square is 9 inches, what is the radius of the circle? | 26) A circle with an area of 121π inches is increased in size so that its circumference is doubled. What is the measurement of the new circle’s radius? |